CLAIMS:

1. A method of anodizing a pressed and sintered valve metal anode to a target formation potential, comprising:

a) immersing the pressed valve metal anode in an anodizing electrolyte to wet the anode and develop an anode-electrolyte system; and

b) subjecting the anode-electrolyte system to potential pulses that are ramped up from a starting voltage to a target voltage over a formation time.

2. The method of Claim 1, further comprising the step of agitating the electrolyte.

3. The method of Claim 2, wherein the agitating step comprises stirring the electrolyte.

4. The method of Claim 2, wherein the agitating step comprises subjecting the electrolyte to sound energy at a frequency in the range from ultrasonic frequencies to audible frequencies during selected time intervals of the waveform period.

5. The method of Claim 2, wherein the agitating step comprises subjecting the electrolyte to stirring induced by a mechanical impeller and to sound energy at a frequency in the range from ultrasonic frequencies to audible frequencies during selected time intervals of the waveform period.

6. The method of Claim 1, further comprising the step of agitating the electrolyte only during time periods between potential pulses.

7. The method of Claim 6, wherein the agitating step comprises stirring the electrolyte.

8. The method of Claim 6, wherein the agitating step comprises subjecting the electrolyte to sound energy at a frequency in the range from ultrasonic frequencies to audible frequencies during selected time intervals of the waveform period.

9. The method of Claim 6, wherein the agitating step comprises subjecting the electrolyte to stirring induced by a mechanical impeller and to sound energy at a frequency in the range from ultrasonic frequencies to audible frequencies during selected time intervals of the waveform period.

10. The method of Claim 1, wherein the subjecting step further comprises:

subjecting the anode-electrolyte system to potential and current pulses; and allowing the pulse amplitude of the potential pulses to increase until the pulse amplitude reaches the target formation potential.

11. The method of Claim 10, wherein the current setting maintains a constant current until the pulse amplitude reaches the target formation potential.

12. The method of Claim 11, wherein the subjecting step further comprises continuing to subject the anode-electrolyte system to current pulses for a hold time after the pulse amplitude reaches the target formation potential until the current flow through the anode-electrolyte system drops to a predetermined level.

13. The method of Claim 1, wherein the subjecting step further comprises:

delivering the potential pulses having a pulse amplitude, and pulse width and a duty cycle to the anode-electrolyte system; and

modifying the duty cycle of the potential pulses as the pulse amplitude approaches the target formation potential.

14. The method of Claim 13, wherein the modifying step further comprises decreasing the duty cycle as the pulse amplitude approaches the target formation potential.

15. The method of Claim 1, wherein the subjecting step further comprises:

delivering the potential pulses having a pulse amplitude, and a frequency to the anode-electrolyte system; and

modifying the pulse width and the pulse frequency as the pulse amplitude approaches the target formation potential.

16. The method of Claim 15, wherein the subjecting step further comprises delivering the potential pulses to the anode-electrolyte system for a predetermined hold time after achievement of the target formation voltage until the current flow through the anode-electrolyte system has dropped to a predetermined level.

17. The method of Claim 15, further comprising the step of agitating the electrolyte in the time between delivered potential pulses.

18. The method of Claim 17, wherein the agitating step further comprises subjecting the electrolyte to sound energy at a frequency in the range from ultrasonic frequencies to audible frequencies.

19. The method of Claim 1, wherein the subjecting step further comprises:

delivering the potential pulses having a pulse amplitude, and pulse width, and a frequency to the anode-electrolyte system; and

decreasing the pulse width and decreasing the frequency of the potential pulses as the pulse amplitude approaches the target formation potential.

20. The method of Claim 19, wherein the subjecting step further comprises delivering the potential pulses to the anode-electrolyte system for a predetermined hold time after achievement of the target formation voltage until the current flow through the anode-electrolyte system has dropped to a predetermined level.

21. The method of Claim 19, further comprising the step of agitating the electrolyte in the time between delivered potential pulses.

22. The method of Claim 21, wherein the agitating step further comprises subjecting the electrolyte to sound energy at a frequency in the range from ultrasonic frequencies to audible frequencies.

23. The method of Claim 1, wherein the subjecting step further comprises:

delivering the potential pulses having pulse amplitudes and pulse widths to the anode-electrolyte system; and

decreasing the pulse width of the potential pulses as the pulse amplitude approaches the target formation potential.

24. The method of Claim 23, wherein the subjecting step further comprises delivering the potential pulses to the anode-electrolyte system for a predetermined hold time after achievement of the target formation voltage until the current flow through the anode-electrolyte system has dropped to a predetermined level.

25. The method of Claim 23, further comprising the step of agitating the electrolyte in the time between delivered potential pulses.

26. The method of Claim 25, wherein the agitating step further comprises subjecting the electrolyte to sound energy at a frequency in the range from ultrasonic frequencies to audible frequencies.

27. The method of Claim 1, wherein the subjecting step further comprises delivering the potential pulses to the anode-electrolyte system for a predetermined hold time after achievement of the target formation voltage until the current flow through the anode-electrolyte system has dropped to a predetermined level.

28. The method of Claim 27, further comprising the step of agitating the electrolyte in the time between delivered potential pulses.

29. The method of Claim 28, wherein the agitating step comprises subjecting the electrolyte to sound energy at a frequency in the range from ultrasonic frequencies to audible frequencies.

30. The method of Claim 1, wherein the subjecting step further comprises:

delivering the potential and current pulses having pulse amplitudes and pulse widths to the anode-electrolyte system; and

decreasing the peak height of the current pulses as the potential pulse amplitude approaches the target formation potential.